What is claimed is:

1. A computer system comprising at least one processor and at least one memory for controlling, especially for coordinating powertrain control for a motor vehicle, having a software architecture that has essentially the following elements or components:

- an operation system and specific services having an operating system and specific services as the basis for all other elements and applications,
- a basic functionality for carrying out universal requests,
- a layer for coordinating tasks for basic functionalities of the base functionality and for linking in plug-ins,
- at least one plug-in for carrying out practical tasks or functions which go beyond the basic functionality and are coordinated by the layer, the plug-ins being especially modularly exchangeable.

2. The computer system as recited in Claim 1,
wherein in the software architecture open interfaces, which may be accessed from outside, and/or encapsulated interfaces, which are not open to the outside, are integrated.

3. The computer system as recited in Claim 1 or 2,
wherein as plug-ins, for example, an ACC (adaptive cruise control) request, a driver's demand (comfort/sport), driveability or shift strategy (comfort/sport) are used.

4. The computer system as recited in one of the preceding claims,
wherein the layer includes the coordinators vehicle coordinator, vehicle motion coordinator and powertrain coordinator.

5. The computer system as recited in Claim 4,
wherein each coordinator is connected to the plug-ins via interfaces, for communication.

6. The computer system as recited in one of the preceding claims,
wherein the layer is connected via interfaces for communication with the basic functionality, which includes base functions that act like sensors or actuators.

7. The computer system as recited in one of the preceding claims,
wherein, because of the module-like exchangeability of the plug-ins, the computer system is flexibly adaptable to different vehicle configurations and control unit configurations, and functions are simple to implement, requests of various systems being centrally introduced in a uniform manner, based on system reference variables, e.g. the transmission output torque.

8. A prioritization method of information providers, e.g. plug-ins, especially for the coordinated powertrain control for a motor vehicle, especially carried out using a computer system according to one of Claims 1 through 7,
in which:

- a list having requesters or plug-ins is sorted according to the degree of the rising or falling priority,
- the sorted list is processed sequentially, beginning with the requester or plug-in having the highest priority,
- the processing of the list is broken off as soon as a requester or a plug-in includes a request command, in order to select this request command.

9. The prioritization method as recited in Claim 8,
wherein the selected request command is stored and routed on.

10. The prioritization method as recited in Claim 8 or 9,
wherein various lists for adapting to global optimization criteria, such as economic adjustment, sport adjustment or the detection of winter may be processed.

11. The prioritization method as recited in one of Claims 8 through 10,
wherein each requester or each plug-in is clearly marked by an identity (ID), preferably as a number, and a position in the various lists, for processing.

12. A prioritization method of information providers, e.g. plug-ins, for the control, especially for the coordinated powertrain control for a motor vehicle, especially carried out using a computer system according to one of Claims 1 through 7, having essentially the following steps:

- in a list having requesters or plug-ins, all requesters are processed in any desired sequence, for example, sequentially,
- from the request commands of the requesters, the request command having the maximum (minimum) request command or the average request command of the requesters is ascertained.

13. The prioritization method as recited in Claim 12,
wherein for ascertaining the maximum (minimum) request command:
- the first polled request command is temporarily stored,
- each polled request command is compared to a temporarily stored request command, to see whether it is greater or smaller than a temporarily stored request command.
- the polled request command is temporarily stored if it is greater or smaller than the temporarily stored request command, and otherwise no storage takes place,
- after polling all requesters, the maximum (minimum) request command is temporarily stored and routed on.

14. The prioritization method as recited in Claim 12 or 13,
wherein in the case of certain requesters, such as requesters that control the engine and the brake, using a certain request command, for instance, a braking intervention, the minimum (maximum) request command, such as the minimum propulsion command, is selected, and otherwise the maximum (minimum) request command is selected.

15. The prioritization method as recited in one of Claims 12 through 14,
wherein individual requesters have the effect that certain other requesters are not taken into consideration in the ascertainment of the maximum (minimum) request command, for example, a requester accelerator pedal has the effect that all requesters, that bring about a braking/deceleration, are not taken into consideration.

16. The prioritization method as recited in one of Claims 12 through 15,
wherein various lists for adapting to global optimization criteria, such as economic adjustment, sport adjustment or the detection of winter are processed.

17. The prioritization method as recited in one of Claims 12 through 16,
wherein each requester or plug-in is clearly marked by an identity (ID), preferably as a number, for processing.

18. The prioritization method of information suppliers, such as plug-ins, as recited in one of Claims 8 through 17,
wherein the (first) prioritization method as recited in one of Claims 8 through 11 is combined with the (second) prioritization method as recited in one of Claims 12 through 17, for instance, by first using the second prioritization method in case the first prioritization method does not deliver a request command.

19. A method for controlling, especially for coordinating the powertrain control of a vehicle, especially carried out using a computer system according to one of Claims 1 through 7, or 25 through 29 having essentially the following steps or phases:
- characterizing the environmental influences,
- establishing a global optimization criterion, such as sporty, economical or wear-preventive,
- interpreting driver command,
- determining the optimal operating point and
- approaching the optimal operating point.

20. The method as recited in Claim 19,
wherein for the characterization of the environmental influences, current environmental data are prepared and typified, if necessary, such as vehicle variables (speed, transverse acceleration), drive train condition (power transmission and trailing throttle/traction), driver type detection (sporty or economical, by derivation from his driving behavior) and driving situation recognition (hill, curve, winter, city, expressway).

21. The method as recited in Claim 19 or 20,
wherein in the driver command interpretation a specification is derived for a longitudinal motion of a vehicle, such as from the accelerator pedal interpretation according to acceleration/deceleration and/or the specifications of a driving speed regulator or an ACC, a system reference variable transmission output torque being subdivided into a variable

transmission output torque for the powertrain and a variable vehicle deceleration for the brake.

22. The method as recited in one of Claims 19 through 21,
wherein for the determination of an optimal operating point for a transmission output torque, a certain engine torque and a certain transmission ratio are ascertained.

23. The method as recited in one of Claims 19 through 22,
wherein approaching the optimal operating point takes place in a certain time span for damping, for example, for driveability, comfort, safety and assembly protection.

24. The method as recited in one of Claims 19 through 23,
wherein the tasks of the phases are processed by coordinators in a layer as recited in one of Claims 1 through 7, and the contents of the phases are ascertained by plug-ins via interfaces, the plug-ins preferably being selected via a prioritization method as recited in one of Claims 8 through 18.

25. A computer system having at least one processor and at least one memory for the control, especially for the coordinated powertrain control of a motor vehicle, especially for carrying out a method as recited in one of Claims 19 through 24, using an object-oriented software system (vehicle) that essentially has the following object-oriented components:
- vehicle motion (VM),
- powertrain (PT)
- vehicle coordinator (VC),
- information providers, such as environment data (ED), driving condition data (DD), vehicle data (VD) and user data (UD),

these object-oriented components communicating with interfaces towards the inside and the outside (interface in and out) and a criteria coordinator (CC) for polling plug-ins.

26. The computer system as recited in Claim 25,
wherein the component vehicle motion has, for example, the components traction system and driving stability system (ESP), vehicle motion coordinator (VMC) and propulsion/brake (PrB).

27. The computer system as recited in Claim 26,
wherein the component propulsion/brake has, for instance, the components propulsion system (PrSy), brake system (BrSy) and a propulsion and brake coordinator (PrBC) having a component acceleration request manager (AccRM).

28. The computer system as recited in one of Claims 25 through 27,
wherein the component powertrain has, for example, the components powertrain coordinator (PTC), engine (Eng), transmission (Tra) and the information provider powertrain data (PD).

29. The computer system as recited in one of Claims 25 through 28,
wherein the criteria coordinator communicates with an application programming interface (API).

30. The method as recited in one of Claims 19 through 24, carried out using a computer system according to one of Claims 25 through 29, having essentially the following steps:

- for the characterization of the environmental influences, the current environmental data or state variables are assigned in the information providers, which all other components may access, with the exception of the powertrain data, which only the powertrain is able to access.
- the vehicle coordinator controls the establishment of a global optimization criterion, which polls suggestions via the criteria coordinator from selected plug-ins,
- the propulsion coordinator and the0 brake coordinator control the driving command interpretation which, in collaboration with selected plug-ins, ascertains, via the criteria coordinator, the specifications for the brakes and the powertrain, preferably the vehicle motion coordinator coordinating these specifications with the traction system and the driving stability system and routing the specifications on to the drive train and the brake system; a vehicle setpoint acceleration, for example, being recalculated to a transmission output torque via the application interface, and routed on to the powertrain.
- plug-ins are selected by the powertrain coordinator for the determination of the optimal operating point via the criteria coordinator, and the powertrain coordinator communicates with the plug-ins via the criteria coordinator.

31. The method as recited in Claim 30,
wherein the selection of the plug-ins is carried out using a prioritization method as recited in one of Claims 8 through 18.

32. A computer program having program code means, for carrying out all the steps of a method as recited in one of Claims 8 through 24, or 30 through 31, if the computer program is run on a computer or an appropriate computing unit.

33. A computer program product having program code means that are stored on a readable data carrier, for carrying out a method as recited in one of Claims 8 through 24, or 30 through 31, if the computer program is run on a computer or an appropriate computing unit.